

CLAIMS:

1. A sheet feeder and separator assembly for separating and sequentially feeding individual print media sheets from a stack thereof, comprising:

- a frame having at least one bearing recess;
- a removable print media tray carried by said frame;
- a separator connected to said removable print media tray;

a pick module assembly removably connected to said frame adjacent said removable print media tray, said pick module assembly including a pick roller adjacent said separator to form a nip and at least one flexible bearing removably received in said at least one bearing recess to removably connect said pick module assembly to said frame.

2. The sheet feeder and separator assembly of claim 1 wherein said at least one flexible bearing (1) has a variable first dimension along a first axis for allowing removal of said at least one flexible bearing from said at least one bearing recess when said first dimension is aligned with an opening width of said at least one bearing recess and (2) has a substantially constant second dimension along a second axis angularly offset relative to said first axis for preventing removal of said at least one flexible bearing from said at least one bearing recess when said second dimension is aligned with said opening width.

3. The sheet feeder and separator assembly of claim 2 wherein said second axis is approximately normal to said first axis

4. The sheet feeder and separator assembly of claim 2 wherein said at least one flexible bearing fixes the position of the pick module assembly along said second axis relative to the frame when said second dimension is aligned with said opening width.

5. The sheet feeder and separator assembly of claim 1 wherein said at least one bearing recess has an opening width that is smaller than a diameter of said at least one flexible bearing requiring a diameter of said at least one flexible

bearing to be selectively variable along a first axis aligned with an opening width of said at least one bearing recess for insertion and removal of said at least one flexible bearing from said at least one bearing recess.

6. The sheet feeder and separator assembly of claim 5 wherein said frame is constructed of a substantially rigid material that resists deformation when said at least one flexible bearing is inserted in or removed from said at least one bearing recess.

7. The sheet feeder and separator assembly of claim 1 wherein said pick module assembly includes:

- a pick frame; and

- a pick roller shaft rotatably mounted to said pick frame by said at least one flexible bearing and having said pick roller connected to said pick roller shaft, said pick roller rotatably fixed to said pick roller shaft when said pick roller shaft is rotated in a first direction and said pick roller rotatable relative to said pick roller shaft when said pick roller shaft is rotated in a second direction.

8. The sheet feeder and separator assembly of claim 7 wherein said at least one flexible bearing includes:

- a grooved portion received within a pick frame bearing recess to rotatably connect said at least one flexible bearing to said pick frame;

- at least one walled portion axially disposed in said grooved portion to limit rotation of said at least one flexible bearing within said pick frame bearing recess;
- and

- a pair of opposed axially extending portions having opposed radial portions adjacent said pick roller shaft that have a substantially fixed diameter thereacross and opposed fingers extending from said radial portions and being radially spaced from said pick roller shaft that have a flexible, varying diameter thereacross.

9. The sheet feeder and separator assembly of claim 7 wherein said pick module assembly further includes:

a nudger roller rotatably mounted to said pick frame adjacent said pick roller by a nudger shaft;

a pick roller gear rotatably fixed to said pick roller shaft;

a nudger roller gear rotatably fixed to said nudger roller shaft;

an idler gear rotatably mounted to said frame and engaged with said pick roller gear and said nudger roller gear so that rotation of said pick roller shaft causes rotation of said nudger roller; and

a driven gear mounted to said pick roller shaft for connection to an associated drive gear.

10. The sheet feeder and separator assembly of claim 7 wherein said pick roller and said nudger roller each include frictional roller treads nonrotatably mounted thereto.

11. The sheet feeder and separator assembly of claim 1 wherein said frame includes a pick module recess and a pair of bearing recesses adjacent thereto, said pick module assembly having a pair of flexible bearings received in said pair of bearing recesses for removably mounting said pick module assembly in said pick module recess, and each of said pair of flexible bearings has a second dimension parallel with a respective opening width of said pair of bearing recesses so that said pick module is locked to said frame until said pick module assembly is rotated so that a first dimension of each of said pair of flexible bearings is parallel with said respective opening width.

12. The sheet feeder and separator assembly of claim 1 further including:
an actuator assembly having (1) an arm pivotally mounted to said frame and including a fork that engages an extending member of said pick frame and (2) a biasing means urging said arm toward an arm first position that holds said pick module assembly in an operative position, said arm movable toward a second position when a force is applied that overcomes said urging of said biasing means wherein said fork disengages said extending member allowing said pick module assembly to be moved to a semi-engaged position for disconnection from said frame.

13. The sheet feeder and separator assembly of claim 12 wherein said at least one flexible bearing has (1) an adjustable diameter when said pick module assembly is in said semi-engaged position that allows said at least one flexible bearing to be removed from said at least one bearing recess and (2) a constant diameter when said pick module assembly is in said operative position that at least one of (a) prevents said at least one flexible bearing from being removed from said at least one bearing recess and (b) substantially prevents movement of said pick module assembly along a second axis.

14. The sheet feeder and separator assembly of claim 12 wherein gravity moves said pick module assembly from said operative position to said semi-engaged position when said force is applied against said urging of said biasing means.

15. The sheet feeder and separator assembly of claim 1 wherein said separator is a retard roller assembly removably connected to said print media tray for replacement thereof, said retard roller assembly including a retard roller and a bias means urging said retard roller into said pick roller.

16. The sheet feeder and separator assembly of claim 1 wherein said separator is one of an active retard roller, a semi-active retard roller and a separator pad.

17. A customer replaceable unit for a sheet feeder for feeding cut sheets from a stack of sheets, comprising:

- a frame;

- a first roller rotatably mounted to said frame;

- a second roller rotatably mounted to said frame adjacent said first roller and connected to said first roller for rotation therewith so that rotation of said first roller causes simultaneous rotation of said second roller; and

- a pair of flexible connecting members connected to said frame for selectively and removably connecting said frame to an associated sheet feeder frame, said pair

of flexible connecting members each flexible along a first axis thereof for connection to said associated sheet feeder frame and relatively inflexible along a second axis thereof for locking to said associated sheet feeder frame when connected thereto.

18. The customer replaceable unit of claim 17 wherein said pair of flexible connecting members are bearings rotatably connecting a pick roller shaft to said frame, said first roller connected to said pick roller shaft.

19. The customer replaceable unit of claim 18 wherein each of said pair of flexible connecting members include:

- a grooved portion received within a recess of said frame to rotatably connect thereto;

- a walled portion axially disposed in said grooved portion to limit rotation within said recess of said frame; and

- a pair of opposed axially extending portions having opposed radial portions adjacent said pick roller shaft that have a substantially fixed diameter thereacross and opposed fingers extending from said radial portions and being radially spaced from said pick roller shaft that have a flexible, varying diameter thereacross.

20. A sheet feeder-separator assembly, comprising:

- a frame;

- a retard roller rotatably connected to said frame;

- a replaceable pick assembly having a pick roller rotatably connected adjacent said retard roller to form a sheet retard nip for retarding sheets other than a select sheet being fed between said retard roller and said pick roller from a stack of sheets; and

- connecting members on one of said frame and said replaceable pick assembly for removably engaging recesses in the other of said frame and said replaceable pick assembly, said connecting members flexible in a first direction allowing removal from said recesses when said first direction is parallel to opening widths of said recesses and rigid in a second direction approximately normal to said first direction preventing removal from said recesses when said second direction is parallel to said opening widths of said recesses.